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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/636,040	08/07/2003	Balas K. Natarajan	10970473-6	9969

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

KIM, JUNG W

ART UNIT	PAPER NUMBER
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2132

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/636,040

Applicant(s)

NATARAJAN, BALAS K.

Examiner

Jung Kim

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-25 is/are rejected.
- 7) ☐ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

1. Claims 1-25 are pending.

Priority

2. It is noted that this application appears to claim subject matter disclosed in prior Application No. 08,939,215, filed 09/29/1997. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e), 120, 121, or 365(c). See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, 121, or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and

(a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

If the reference to the prior application was previously submitted within the time period set forth in 37 CFR 1.78(a), but not in the first sentence(s) of the specification or an application data sheet (ADS) as required by 37 CFR 1.78(a) (e.g., if the reference was submitted in an oath or declaration or the application transmittal letter), and the information concerning the benefit claim was recognized by the Office as shown by its inclusion on the first filing receipt, the petition under 37 CFR 1.78(a) and the surcharge under 37 CFR 1.17(t) are not required. Applicant is still required to submit the reference in compliance with 37 CFR 1.78(a) by filing an amendment to the first sentence(s) of the specification or an ADS. See MPEP § 201.11.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1, 2, 9-15, 17, 18, 22-24 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,611,599. Although the conflicting claims are not identical, they are not patentably distinct from each other because all the limitations of these claims are defined in claims 1-14 of USPN 6,611,599.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, 17 and 18 are rejected under 35 USC 102(b) as being anticipated by Schneier Applied Cryptography, Chapter 2, "Protocol Building Blocks" (hereinafter Schneier).

7. As per claims 1, 2, 17 and 18, Schneier discloses a method and system for identifying digital object using digital watermark comprising:

a. means for encrypting a message derived from source data with a signature encryption key to obtain an encrypted message digest; means for deriving a watermark from the encrypted message digest and incorporating into the source data; means for performing a hash function on the source data to obtain a message digest and wherein the means for encrypting encrypts the message digest with the signature encryption key to obtain the encrypted message digest. Pgs. 38-39, "Signing Documents with Public-Key Cryptography and One-Way Hash functions."

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 1-7, 9, 10, 17-22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Craver et al. "Can Invisible Watermarks Resolve Rightful Ownerships?" (hereinafter Craver) in view of Schneier.

10. As per claim 17-22, Craver discloses a system for identifying data using digital watermark, comprising:

- b. means for deriving a watermark from a signature and incorporating it into the source data (p. 5, example 1, 2nd paragraph);
- c. wherein the watermark is a physical domain watermark and the means for deriving incorporates the physical domain watermark to at least a portion of the source data (p. 5, example 1, 2nd paragraph; watermark image is derived after an inverse 2D DCT taken of modified matrix);
- d. wherein the means for deriving derives a frequency domain vector from the signature and transforms the vector to physical domain in deriving the watermark (p. 5, example 1, 2nd paragraph; D(l) corresponds to n AC DCT coefficients and inverse 2D DCT is taken of the modified matrix);
- e. wherein the means for deriving derives the frequency domain vector by modulating at least a portion of the signature to obtain at least a portion of the vector (p. 5, example 1, 2nd paragraph);
- f. wherein the means for deriving manages the source data as rows and columns of pixels and derives a watermark vector based on the vector, the watermark vector having a dimension corresponding to the number of rows or the

number of columns of the pixels (p. 5, example 1, 2nd paragraph; source data is a matrix; signature is embedded in the matrix).

11. Carver does not expressly disclose the signature is an encrypted hash using a private signature key. Schneier discloses a conventional means of signing digital information by hashing the source content and encrypting the hash using a private signature key to generate an encrypted message digest. Schneier discloses that such a step enables an efficient proof of authorship. Pg. 34, Section 2.6, "Digital Signatures," 1st paragraph; pg. 38, "Signing Documents with Public-Key Cryptography and One-Way hash functions." Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made for the system to comprise means for encrypting a message derived from source data with a signature encryption key to obtain an encrypted message digest; means for deriving a watermark from the encrypted message digest and incorporating into the source data; and means for performing a hash function on the source data to obtain a message digest and wherein the means for encrypting encrypts the message digest with the signature encryption key to obtain the encrypted message digest. One would be motivated to do so to enable an efficient proof of authorship using encrypted hashes as taught by Schneier, *ibid.* The aforementioned cover the limitations of claims 17-22.

12. As per claims 1-5 and 9, they are claims corresponding to claims 17-22, and they do not teach or define above the information claimed in claims 17-22. Therefore, claims

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1-5 and 9 are rejected as being unpatentable over Carver in view of Schneier for the same reasons set forth in the rejections of claims 17-22.

13. As per claims 6 and 7, the rejection of claim 5 under 35 USC 103(a) as being unpatentable over Craver in view of Schneier is incorporated herein. In addition, a portion of the vector corresponds to low frequencies and another portion of the vector corresponds to high frequencies, the portion of the vector corresponding to low frequencies being derived by modulating at least a portion of the encrypted message digest; wherein the portion of the vector corresponding to low frequencies are modulated to have more significant impact on amplitude of the watermark than the portion of the vector corresponding to high frequencies. Carver, pg. 5, example 1, 1st paragraph; DCT coefficients selected from mostly low frequency.

14. As per claim 10, the rejection of claim 9 under 35 USC 103(a) as being unpatentable over Craver in view of Schneier is incorporated herein. In addition, the pixel contains data on a discrete section of image data. Carver, pg. 5, example 1, first paragraph.

15. As per claim 16, it is a claim corresponding to claims 17-22, and it does not teach or define above the information claimed in claims 17-22. Therefore, claim 16 is rejected as being unpatentable over Carver in view of Schneier for the same reasons set forth in the rejections of claims 17-22.

16. As per claim 25, it is a claim corresponding to claims 17-22, and it does not teach or define above the information claimed in claims 17-22. Therefore, claim 25 is rejected as being unpatentable over Carver in view of Schneier for the same reasons set forth in the rejections of claims 17-22.

17. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Craver in view of Schneier, and further in view of Cox et al. USPN 5,930,369 (hereinafter Cox).

18. As per claim 11, the rejection of claim 9 under 35 USC 103(a) as being unpatentable over Craver in view of Schneier is incorporated herein. Although Craver does not disclose the pixel contains data on a discrete section of audio data, the example is based on a scheme proposed by Cox, Killian and Shamoon. Cox et al. further provides a disclosure of this scheme in patent 5,930,369, wherein the watermark insertion technique is applied to video data. See Abstract. Hence, it would be obvious to one of ordinary skill in the art at the time the invention was made wherein a pixel contains data on a discrete section of audio object. One would be motivated to do so to provide a robust watermark in video signals as taught by Cox. Col. 5:40-50. The aforementioned cover the limitations of claim 11.

19. Claims 12-15, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Craver in view of Schneier, and further in view of Rhoads USPN 5,850,481 (hereinafter Rhoads).

20. As per claims 23 and 24, the rejections of claims 17-22 as being unpatentable over Craver in view of Schneier are incorporated herein. Craver does not disclose the means for deriving drives from the source data a source data vector having the same dimension as that of the watermark vector by selecting at least a portion of the source data and wherein the watermark is orthogonal to source data vector; wherein the system further comprising a means for comparing a set of target data with the source data, the means for comparing compares a target vector derived from the target data to the source data, the target vector being orthogonal to the source data vector. Rhoads discloses a stenographic system wherein inserted watermark data is perceptually orthogonal to the source data, thereby maximizing the signal energy of the identification information while maintaining it below some perceptual threshold. Rhoads, col. 13:44-58; claim 23. It would be obvious to one of ordinary skill in the art at the time the invention was made for the system of Craver to be modified such that the means for deriving drives from the source data a source data vector having the same dimension as that of the watermark vector by selecting at least a portion of the source data and wherein the watermark is orthogonal to source data vector; wherein the system further comprising a means for comparing a set of target data with the source data, the means for comparing compares a target vector derived from the target data to the source data,

the target vector being orthogonal to the source data vector. One would be motivated to do so to maximize the signal energy of the identification information while maintaining it below some perceptual threshold. Rhoads, *ibid*. The aforementioned cover the limitations of claims 23 and 24.

21. As per claims 12-15, they are claims corresponding to claims 17-22 and 23-24, and they do not teach or define above the information claimed in claims 17-22 and 23-24. Therefore, claims 12-15 are rejected as being unpatentable over Carver in view of Schneier and Rhoads for the same reasons set forth in the rejections of claims 17-22 and 23-24.

Allowable Subject Matter

22. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communications Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung W. Kim whose telephone number is 571-272-3804. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

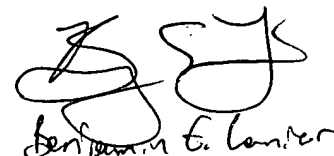
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jk

March 27, 2007



Benjamin E. Conner
Examiner AU 2132